COLORAM IT
Color Changer

Coloram IT
User Manual

WYBRON
Advancing The Art Of Lighting

84520 4-inch Coloram IT Color Changer
87110 7.5-inch Coloram IT Color Changer
810100 10-inch (2K) Coloram IT Color Changer

Coloram IT software version: V1.2
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DECLARATION OF CONFORMITY

Manufacturers Name: Wybron, Inc.
Manufacturers Address: 4830 List Dr., Colorado Springs, Colorado 80919 USA

Equipment Name: Coloram IT Color Changer
Equipment Model Number(s): 84520, 87110, 810100, 816090, 815010, 816080

This product is in conformity with the following standards:

Referenced Safety Standard(s)	**Referenced EMC Standard(s)**
EN60598-1 EN60598-2-17	EN55022

following the provisions of the EU LV Directive 73/23/EEC and the EU EMC Directive 89/336/EEC.

I declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Signature: Kenneth Fasen

Printed Name: KEN FASEN

Title: VP of ENG.

Date: 14 Sept, 2004

Safety Notice

SAVE THESE INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS

This manual gives step-by-step instructions for preparation, setup and operation of the Coloram IT Color Changer.

There is a potential risk of injury to persons if the product is not used as instructed.

The Coloram IT is not intended for residential use.

WARNING: When using electrical appliances, use basic precautions, including:

- Read this manual before connecting power.
- Use supervision around children.
- Do not touch moving parts.
- Only use attachments recommended or sold by Wybron.
- Use in a dry location only.

Replace only with same type and rating of fuse.

For questions, contact Wybron at 1-800-624-0146.

Product Modification Warning

Wybron, Inc. products are designed and manufactured to meet the requirements of United States and International Safety standards. Modifications to the products could affect safety and render the product non-compliant to relevant safety standards.

Introduction

The Coloram IT system includes a scrolling color changer and PS Power Supply, that uses Remote Device Management (RDM) bi-directional communications protocol, in a range of models and offers an ease of setup and use. The Coloram IT system is part of the InfoTrace system that represents a new way of managing a lighting installation.

The Coloram IT system, with its variable color capacity, RDM features and DMX compatibility affords the designer economy and versatility, particularly when budget and space are limited. The lightweight color changers slide easily into the gel frame holder of the light fixture. The compact power supplies attach effortlessly to the truss of the lighting rig or mount into a 19-inch rack.

The DMX512 control signal from the lighting console is connected through the InfoGate Gateway and dimmers to the PS Power Supply, and can continue on to additional PS Power Supplies or other DMX-controlled devices. The power supply sends power, DMX control signal and RDM information to the color changers on a single cable, eliminating the need for a separate power cable for the color changers.

Coloram IT color changers are 100% compatible with all members of the Coloram IT family including CXI IT color changers, PS Power Supplies, the Eclipse IT Dowser and Eclipse II IT Dowser. You can also daisy chain Coloram IT color changers with other Coloram IT equipment.

This manual gives step-by-step instructions for preparation, setup and operation of the Coloram IT Color Changer as part of the InfoTrace system.

Caution:
The Coloram IT System is not compatible with Coloram II (RAM) System.

Do not connect Coloram IT Color Changers to Coloram II (RAM) Power Supplies.

Do not connect Coloram II color changers to PS Power Supplies.

Damage from such action will not be covered by the product warranties.

InfoTrace System Overview

Figure 1

The diagram above outlines the key components, which include:

- **InfoTrace** – The entire system is referred to as the InfoTrace System
- **InfoGate** – The software and hardware required to facilitate the transfer and display of information
- **InfoChip** – A conversion chip that can be used with non-RDM equipment to allow communication with the InfoGate Software
- **InfoStore** – An Internet based application that aggregates data captured by InfoGate and allows for the accumulation of historical information related to the equipment performance in the installation
- **IT Products** – Coloram IT, CXI IT, Eclipse IT, and Eclipse II IT all have updated electronics to support RDM communication plus additional product improvements, including sensors to detect a variety of conditions.

The heart of the InfoTrace (IT) system is InfoGate — specialized software that uses the bi-directional communications protocol, Remote Device Management (RDM), to facilitate remote addressing and diagnostics for potentially every piece of equipment mounted on a rig. InfoGate works with all IT products and all RDM-compatible equipment from any manufacturer.

In addition, any non-RDM equipment can be upgraded with the installation of an InfoChip. Because InfoGate can work with any equipment, the setup, unit testing, and

troubleshooting for an entire rig can be coordinated from a single laptop.

Wybron's IT equipment (Coloram IT, CXI IT, Eclipse IT, and Eclipse II IT) is equipped with a series of sensors that can relay a wealth of information to InfoGate. These sensors can detect everything from light, voltage, current, to fan speed and even gelstring frame color information.

So while RDM equipment will allow identification and remote addressing, IT equipment can give more specific status information and warn of potential problems, possibly averting failures in the middle of a show. If the status of a device indicates any problem, InfoGate displays an alert with the nature of the problem and the exact location. Troubleshooting is now done in a fraction of the time.

InfoTrace provides the ability to:

- Automate the setup of DMX addresses – no more manual setting of DIP switches
- Proactively check the condition of equipment before, during and after a show
- Track lamp duty cycles to predict lamp failures before they happen
- Predict maintenance on equipment
- Predict gel replacement prior to degradation

Sensors

Coloram IT, CXI IT, Eclipse IT and Eclipse II IT:

• Aperture Light Sensor: Detects if the fixture's lamp is on.

• Voltage Sensor: Reports the head voltage level.

• Pass Through Current Sensor: Measures the amount of current that passes through the XLR connector wiring harness; assists in automatically setting up the rig in conjunction with InfoGate.

• Unit Current Sensor: Measures the amount of current that a unit is consuming, which can be an indicator of motor health.

• Timers: Keep track of how many hours the unit has been in operation in it’s lifetime and also since its last maintenance cycle.

• Fan RPM Sensor: RPM sensor on fan.

• Self Test Mode: Moves the gelstring without a DMX input command.

• Reverse Polarity Protection: Auto shutdown if scroller is plugged into a Coloram II power supply.

Additional Sensors

Coloram IT and CXI IT only:

- Gel Color Reader: Reads digital information off of the gelstring, including gelstring frame color information.

- Gel Wear Counter: Tracks how much the gelstring has moved and alerts the user when a gelstring needs to be replaced.

- Gel Temperature Sensor: Approximates and reports the temperature of the gel.

- "Gelstring is broken" Sensor: Detects if the gelstring is broken after gelstring initialization.

- Motor Shutdown if Gelstring is Broken: Automatically shuts down the motor if the gelstring breaks or comes loose from a roller.

Alert Warnings include:

- Fan Stopped
- High Motor Current
- Fan Off and Lamp On
- Unit Cleaning Period Reached
- Gelstring Initializaion Fail
- Low Voltage Alert
- Low Voltage Unit Shutdown
- Gelstring out of Position, Unit Shutdown (Coloram IT and CXI IT only)
- Gelstring Replacement Period Reached (Coloram IT and CXI IT only)

InfoTrace Connection Diagram

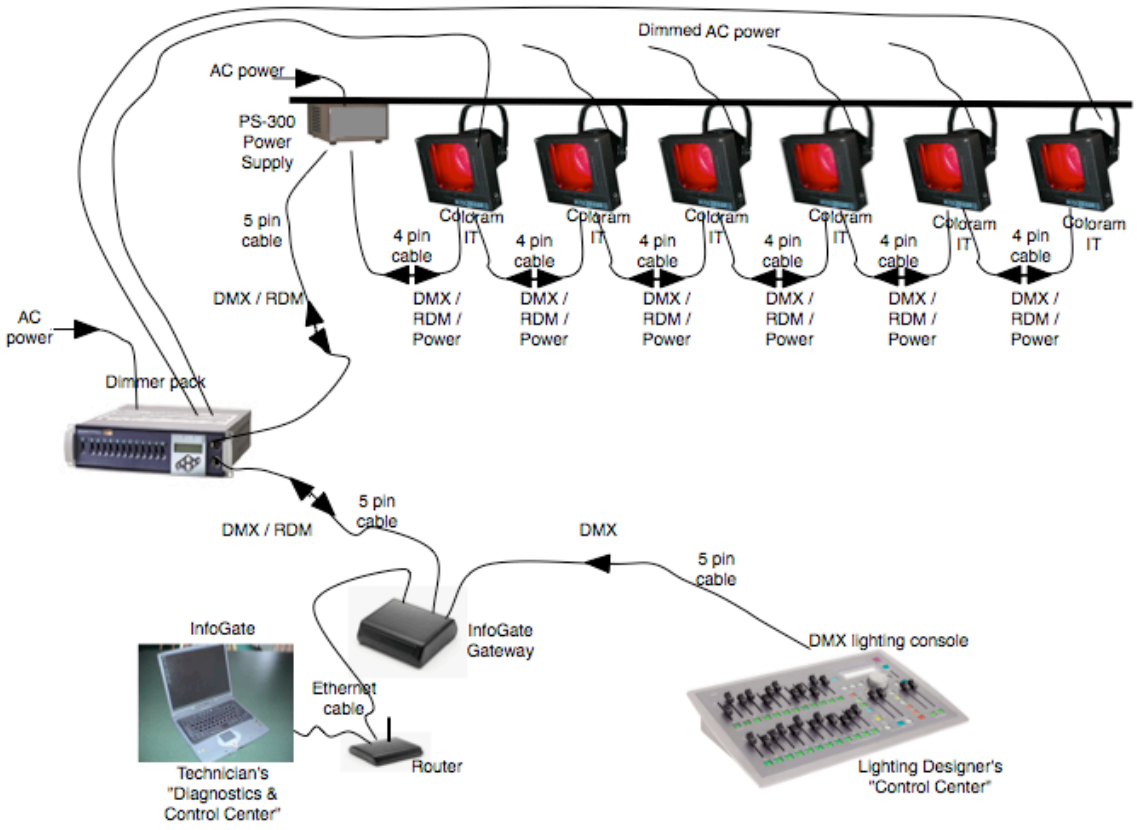


Figure 2

Quick Start

1. Connect the Equipment

A. Attach the Coloram IT Color Changer to a powered light fixture.
B. Connect the Coloram IT Color Changer to the PS Power Supply using the 4-pin Wybron Power/Data Cable.
C. Connect the PS Power Supply to non-dimmed 100-240 VAC, 50/60Hz power and to a DMX source.
D. Connect dimmers that have InfoChip installed, to the InfoGate hardware and software. Please refer to the InfoGate and InfoChip manuals for details.
E. Using InfoGate:
   i. Initiate “Perform Discovery”
   ii. In the DMX Map, drag and drop the DMX address for the color changer to DMX address 1.

Please refer to the InfoGate manual for details.

2. Send DMX Levels

A. From the lighting console, vary the level of the Coloram IT on DMX address 1 to move the gelstring back and forth. Please refer to the InfoGate manual for details.

Using the Coloram IT Color Changer

The Coloram IT Color Changer sets its gelstring position according to the DMX512 level it receives from the control console. As all Coloram IT Color Changers will accommodate variable length gelstrings, the level settings which correspond with each frame position will vary depending on the number of frames in the gelstring.

The following chart shows the level settings that correspond with each frame position if a 24 frame gelstring is installed on a 7.5-inch color changer. The color of each frame position will be determined by your custom gelstring specification.

Channel Level	Frame Position	Channel Level	Frame Position
00	Frame 1	51	Frame 13
04	Frame 2	55	Frame 14
09	Frame 3	59	Frame 15
12	Frame 4	64	Frame 16
17	Frame 5	69	Frame 17
21	Frame 6	73	Frame 18
25	Frame 7	78	Frame 19
29	Frame 8	82	Frame 20
34	Frame 9	87	Frame 21
38	Frame 10	91	Frame 22
42	Frame 11	96	Frame 23
47	Frame 12	FL	Frame 24

If you send a channel level that is between the values shown, you can create split frame effects. For example, if you send a level of 49, the color changer positions the gelstring halfway between frame 12 and frame 13 creating a blend of the two colors.

Alternately, when the InfoGate information is exported to some types of lighting consoles, each gelstring frame position can be programmed as a gel color, frame number or other identifier. The desired gelstring frame is then recalled by selecting the desired gelstring frame (i.e. Frame 09) or gel color (R68) on the lighting console, instead of typing in a DMX level.

Coloram IT System Components

Color Changers

All Coloram IT Color Changers use gelstrings which can vary in length. The color changers set the position of the gelstring as determined by the DMX level. The color changers are powered by 24 volts DC which also comes from the power supply. The control signal, RDM data and DC power are all supplied in one cable connecting the color changers to the power supply.

Note: Please refer to the Specifications section of this manual for the maximum number of gelstring frames each color changer will hold.

Gelstring

The gelstring is a series of precisely cut, colored gel frames joined together, side by side, to create a sequence of colors. Two additional gels at each end of the gelstring are called the leader and the trailer. The leader and the trailer allow for proper attachment to the rollers. The gelstring has foil tags near each end which are necessary for the color changer's automatic calibration to the length of that particular gelstring.

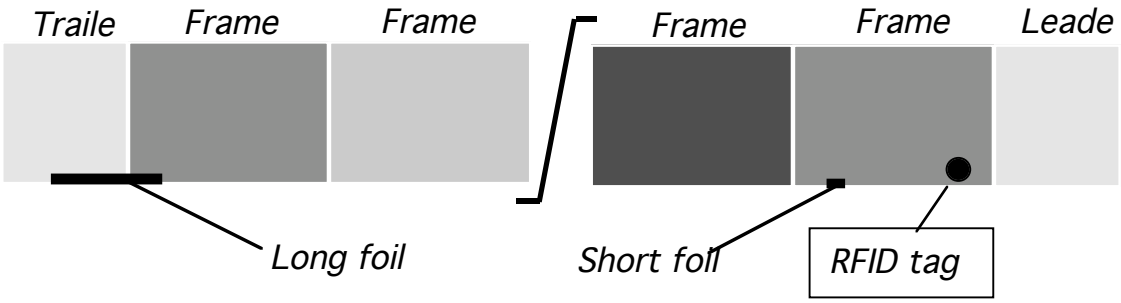


Figure 3

The Coloram IT gelstring also has a radio frequency identification (RFID) tag which identifies the sequence of gels on the gelstring (as part of the InfoTrace setup process), and also assists in ordering additional gelstrings. Please refer to the ColorExpress IT section of this manual for information on how to create and order gelstrings online.

Power Supply

The PS Power Supply sends the DMX512 signal level from the lighting console to each color changer, along with 24 volts DC. RDM information is sent from the Coloram IT Color Changer to the InfoGate software installed on a Mac or PC.

Cables

Power/Data cable

The 4-pin Power/Data Cable connects the PS Power Supply outputs to the Coloram IT Color Changers and provides them with power and control signal.

The Power/Data cable uses 4-pin XLR connectors on either end and consists of two 14 AWG conductors and a 22 AWG twisted, shielded pair. The shells of the two XLR connectors are not electrically connected -- this prevents high power currents from flowing from chassis to chassis of the Coloram IT equipment. The twisted pair shield is connected only at the male XLR connector end. This is the standard Wybron Power/Data Cable.

XLR Pin #	Wire Color	Function	Size
1	White	Ground	14 AWG
2	Green	Data -	22 AWG
3	Red	Data +	22 AWG
4	Black	24 Volts DC	14 AWG

Note: The cable used in the Coloram IT System is the same cable which is used in the Coloram II and Forerunner Systems and may be referred to as Coloram IT, Coloram II or Forerunner cable.

DMX512 control cable

The DMX control cable from the lighting board to the InfoGate Gateway, dimmers and power supply is a five conductor cable with 5-pin XLR connectors on each end. The wiring pin out is specified by the USITT DMX512 / 1990 standard.

XLR Pin #	Function
1	Common
2	Data -
3	Data +
4	Talkback -
5	Talkback +

Installing The Coloram IT

1. Attach the color changer to the fixture

Slide the color changer's mounting bracket into the gel frame holder of your fixture and lock the gel frame retention clip (if available). If the mounting plate installed on your color

changer does not fit the fixture, you may be able to replace it with the Wybron Universal Mounting plate.

The mounting plate allows you to position the color changer with the gelstring rolling either horizontally or vertically. However, Coloram IT operates most effectively with the fan, which is located in the top of the center panel, blowing air vertically (as hot air naturally rises).

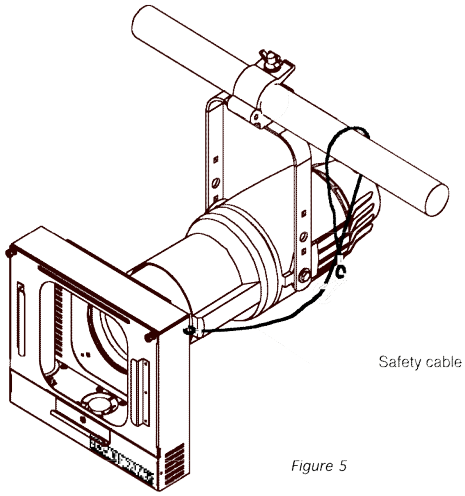


Figure 5

Figure 4

2. Attach the safety cable

A safety cable is attached to the color changer. Run this cable around the pipe or truss from which you hang the light fixture and clip it to itself.

3. Mount the power supply

The PS Power Supply is designed to be free standing, truss mounted, or rack mounted. You decide which mounting method best suits your application.

The power supply comes with a mounting bracket which hooks over the pipe or truss of your lighting rig and is then locked into place with a thumb screw. If you have selected this mounting method, connect the safety cable by running it around the pipe or truss to which the power supply is attached.

The power supply can also be mounted into a 19" rack using the optional PS Power Supply rack mount kit. The rack mount kit will accommodate two PS Power Supplies side by side.

4. Connect the color changers to the power supply

Connect the color changers to the power supply using 4-pin Coloram IT cable.

Refer to the HEAD-FEET RESTRICTIONS section of this manual for details regarding the length of cable runs.

5. Connect the power supply to AC power

Plug the AC cord into a non-dimmed power circuit. The power supply automatically accommodates 100 - 240 VAC (50/60 Hz).

Power at the PS Power Supply is indicated by a red LED indicator.

The connected color changers will automatically "calibrate" themselves to the gelstring installed by doing the following actions:

a. Moving the gelstring toward the last frame, in search of the long foil tag.
b. Turning around at the long foil tag and then searching for the short foil tag at the beginning of the gelstring.
c. Stopping at the short foil tag and staying there if no DMX signal is present or going to its commanded position if DMX signal is present.

Note: It may take up to 30 seconds before all color changers start to initialize.

Caution: Do not power the PS Power Supply from a dimmer. Severe damage will result and is not covered by product warranty.

6. Connect the DMX512 source

Connect the DMX512 signal source to the DMX input connector on the front of the power supply using standard DMX cable. Valid DMX signal will be indicated by a green LED. The color changers will now position their gelstrings according to their respective DMX signal levels.

Please refer to the InfoGate manual for further details about how lighting fixtures and Coloram IT color changers can be automatically paired together and remotely assigned DMX addresses using InfoGate.

COLORAM (IT)
Graphical Menu Tree

Main LCD Menu

[Alerts Menu] >
[DMX Status]
DMX Address: 512
Settings >
Sensor Info >
History >
Reset Defaults >

Alerts Menu
This menu only displays when there is an active alert on the unit.

Multiple Alerts

GEL ALERT >
FAN ALERT >

Reset all Alerts? No/Yes

Single Alert

GEL ALERT
GEL STRING OUT OF POSITION - UNIT SHUT DOWN

Reset this Alert? No/Yes

DMX Status
Displays status of incoming DMX signal. Examples:
"No DMX Data" *or*
"DMX Signal OK"

DMX Address
Displays current DMX Address that can be selected and modified, using unit buttons.

Note: The unit will remember its DMX Address when unplugged.

Settings

DMX Addresses >
Fan Speed >
Gel Move Speed >

DMX Addresses
Device addresses can be modified from this screen.

Scroller Address 1
Fan Speed Addr 2
Time/Dest Addr 3

Note: The unit only supports one secondary address at a time. You can have Fan Speed on a remote channel or Time To Destination (Time/Dest) on a remote channel but not both remotely controlled at the same time.

Fan Speed

FAN SPEED high

Fan Speed Options:
High - default
Low
Remote - control remotely via assigned DMX channel

Gel Move Speed

GEL MOVE SPEED high
TTD info >

Gel Move Speed Options:
High - default
Low
Time/Dest - control remotely via assigned DMX channel

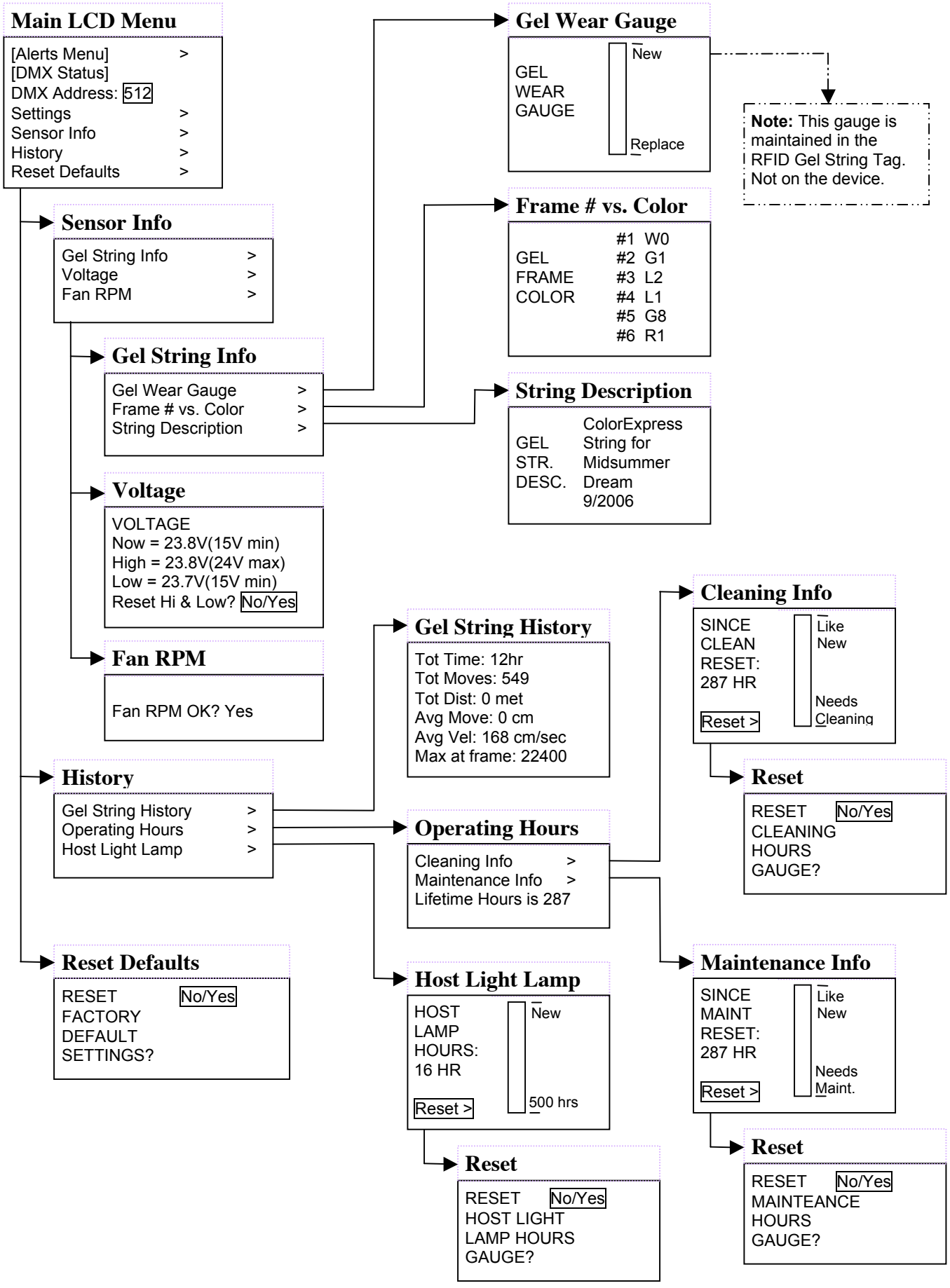
TTD info

Time/Dest Addr 3
Information >

Information
*Chart of information regarding **time to destination** remote settings. No changes can be made from this screen.*

TIME TO DEST INFO ONLY	95-100%: Hi
	90-94%: Low
	85-89%: 80 sec
	80-84%: 70 sec
	75-79%: 60 sec
	70-74%: 50 sec
	65-69%: 40 sec
	60-64%: 35 sec
	55-59%: 30 sec
	50-54%: 25 sec
	45-49%: 20 sec
	40-44%: 15 sec
	35-39%: 10 sec
	30-34%: 9 sec
	25-29%: 8 sec
	20-24%: 7 sec
	15-19%: 6 sec
	10-14%: 5 sec
	5-9%: 4 sec
	0-4%: ASAP

Continued next


Main LCD Menu
[Alerts Menu] >
[DMX Status]
DMX Address: 512
Settings >
Sensor Info >
History >
Reset Defaults >
Sensor Info
Gel String Info >
Voltage >
Fan RPM >
Gel String Info
Gel Wear Gauge >
Frame # vs. Color >
String Description >
Voltage
VOLTAGE
Now = 23.8V(15V min)
High = 23.8V(24V max)
Low = 23.7V(15V min)
Reset Hi & Low? No/Yes
Fan RPM
Fan RPM OK? Yes
History
Gel String History >
Operating Hours >
Host Light Lamp >
Reset Defaults
RESET FACTORY DEFAULT SETTINGS? No/Yes
Gel Wear Gauge
GEL WEAR GAUGE
New
Replace
Note: This gauge is maintained in the RFID Gel String Tag. Not on the device.
Frame # vs. Color
GEL FRAME COLOR
#1 W0
#2 G1
#3 L2
#4 L1
#5 G8
#6 R1
String Description
GEL STR. DESC.
ColorExpress String for Midsummer Dream 9/2006
Gel String History
Tot Time: 12hr
Tot Moves: 549
Tot Dist: 0 met
Avg Move: 0 cm
Avg Vel: 168 cm/sec
Max at frame: 22400
Operating Hours
Cleaning Info >
Maintenance Info >
Lifetime Hours is 287
Host Light Lamp
HOST LAMP HOURS: 16 HR
Reset >
New
500 hrs
Reset
RESET HOST LIGHT LAMP HOURS GAUGE? No/Yes
Cleaning Info
SINCE CLEAN RESET: 287 HR
Reset >
Like New
Needs Cleaning
Reset
RESET CLEANING HOURS GAUGE? No/Yes
Maintenance Info
SINCE MAINT RESET: 287 HR
Reset >
Like New
Needs Maint.
Reset
RESET MAINTEANCE HOURS GAUGE? No/Yes

MENU DETAILS

1. Use the π and θ buttons to scroll through selections on Coloram IT display.
2. Press **SELECT** to activate that selection.

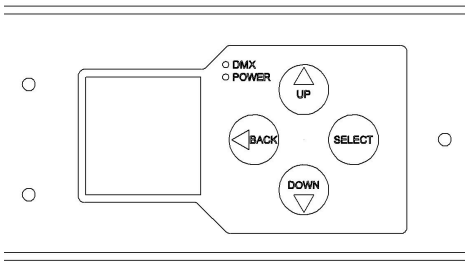


Figure 5

The π and θ buttons are also used to navigate to further levels within the display. For example, to select “Scroller Address”:

1. Use the π and θ buttons to move to the selection box to “Settings”.
2. Press **SELECT** to select “Settings”.
3. Use the π and θ buttons to move to the selection box to “DMX Addresses”.
4. Press **SELECT** to select “DMX Addresses”.
5. Use the π and θ buttons to move to the selection box to “Scroller Address”.
6. Press **SELECT** to select “Scroller Address”.

Alerts / Error Messages

The following is an explanation of alerts and error messages that are displayed locally on the color changer.

To read alert messages:

1. When “SENSOR ALERT” is displayed, press **SELECT.**
2. As an example: “VOLTAGE ALERT” indicates a voltage problem.
3. Press **SELECT** to access more information on the Voltage Alert.
4. For example: “WARNING – VOLTAGE DROPPED BELOW 15V”

VOLTAGE ALERTS

- “WARNING – VOLTAGE DROPPED BELOW 15V”

Operating voltage has dropped below the minimum operating requirement of 15 volts. The cable between the Coloram IT and the PS Power Supply may be too long.

- "VOLTAGE DROPPED
  BELOW 13V
  UNIT SHUTDOWN"

  Unit has automatically shut down because operating voltage has dropped below 13 volts for more than one second. The voltage typically drops this low if the Coloram IT cable is too long — the head-feet limit has been exceeded. The Coloram IT cable must be shortened or the number of Coloram IT scrollers must be reduced to solve this problem.

GEL ALERTS

1. "GELSTRING OUT
   OF POSITION — UNIT
   SHUTDOWN"

   Scroller motor automatically shuts down if gelstring is not at its programmed frame position or a roller is stuck.

2. "GELSTRING DID
   NOT INIT PROPERLY"

   Gelstring did not initialize properly. Please check that gelstring is properly installed.

3. "GELSTRING IS
   BROKEN —
   UNIT SHUTDOWN"

   Scroller motor automatically shuts down if gelstring has broken or come loose from a roller. Gelstring needs to be replaced or reinstalled.

MOTOR ALERT

1. "MOTOR IS
   OPERATING AT A HI
   CURRENT LEVEL"

   High current level at the scroller motor may indicate an ususually high level of friction at the motor. Please check scroller motor for possible maintenance or replacement.

FAN ALERT

1. "FAN IS OFF WHILE
   THE LAMP IS ON"

   The color changer may overheat or premature fading of the gelstring colors may occur when the scroller fan is off while the fixture lamp is on.

2. “FAN IS NOT OPERATING PROPERLY”
   Check fan for possible maintenance.

RFID ALERTS

1. “RFID TAG — COMMUNICATION FAILURE”
   A. Communication could not be established with the RFID tag.
   B. Press **SELECT** for more detailed information:

      i. “COULD NOT WAKE THE RFID TAG”
         RFID wake command did not finish.

      ii. “COULD NOT READ THE RFID TAG”
         Coloram IT had a communication failure when trying to read the RFID tag.

      iii. “COULD NOT WRITE THE RFID TAG”
         Coloram IT had a communication failure when trying to write to the RFID tag.

RESET ALERT
Clears existing alert from display screen when you press **SELECT**, unless the problem still currently exists.

MULTIPLE ALERTS
1. Press **SELECT** to read the first alert.
2. Press **SELECT** to read the details of the first alert.
3. Press **BACK** to view the second alert.
4. Press **SELECT** to view details of the second alert.
5. Press **BACK** to check if there any additional alerts, repeat Steps 4 and 5 until all alerts have been read.
6. Once all alerts have been read, use the d key to move the selection box to the “RESET ALL ALERTS” command.
7. Press **SELECT** to clear all alerts, except for those that currently exist as problems.

DMX Address

1. Use the π and θ buttons to select the desired Coloram IT DMX address.

2. Press **SELECT** to activate the displayed Coloram IT DMX address.

Settings

DMX ADDRESSES

Scroller Addr (Scroller Address)

A. Use the π and θ buttons to select the desired Coloram IT DMX address.
B. Press **SELECT** to activate the desired Coloram IT DMX address.

Fan Speed Addr (Fan Speed Address)

A. Selecting a DMX address for Fan Speed Address also automatically sets Fan Speed to "REMOTE" (see "Fan Speed" below).
B. Use the π and θ buttons to select the desired DMX address.
C. Press **SELECT** to activate the desired DMX address.

Time/Dest Addr (Time to Destination Address)

If this function is enabled, this feature controls the time it takes to arrive at the destination gelstring position after the new destination command is sent.

A. Use the π and θ buttons to select the desired DMX address.
B. Press **SELECT** to activate the desired DMX address.

FAN SPEED

1. Use the π and θ buttons to select High (normal setting), Low or Remote.
   A. REMOTE assigns Fan Speed control to the lighting console where:
      51% to 100% = Fan at High (normal) setting
      0% to 50% (except 8%) = Fan at Low setting
      8% = Off

GEL MOVE SPEED

1. Use the π and θ buttons to select High, Low or Time/Dest (Time to Destination).
2. Press **SELECT** to activate the desired setting.

TTD Info (Time to Destination information)

A. Gel Time to Destination DMX Address — use the π and θ buttons to select the desired DMX address.
   i. If this function is enabled, this feature controls the time it takse to arrive at the destination gelstring position after the new destination command is sent.

   ii. The DMX address for this feature can also be set at the alternate display "DMX Address: DMX Addresses: Time/Dest Addr".

   iii. For quietest gelstring movement, select the longest time possible.

   iv. Information Only
   Displays DMX levels to be used at the lighting console to program

specific timings using Gel Time to Destination.

Coloram IT Gelstring Time Table

DMX Level	Time to Destination
0-4%	As Soon As Possible
5-9%	greater of: 1 sec or ASAP
10-14%	greater of: 2 sec or ASAP
15-19%	greater of: 3 sec or ASAP
20-24%	4 sec
25-29%	5 sec
30-34%	6 sec
35-39%	7 sec
40-44%	8 sec
45-49%	9 sec
50-54%	10 sec
55-59%	11 sec
60-64%	12 sec
65-69%	13 sec
70-74%	14 sec
75-79%	15 sec
80-84%	16 sec
85-89%	17 sec
90-94%	18 sec
95-100%	19 sec

Sensor Info

GELSTRING INFO

Gel Wear Gauge

Press **SELECT** to display the gauge that indicates how gelstring currently rates between “New” and “Replace”.

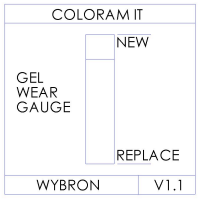


Figure 6

Frame # vs. Color

Lists each frame number and associated gel color. Use the π and θ buttons to scroll through list. For example:

Frame 3	L110
Frame 4	R02
Frame 5	R33
Frame 6	R01

String Description

Press **SELECT** to display the gelstring description created by the user when the gelstring was ordered. The order information is also imbedded on the gelstring RFID tag:

ABC Co.
Order 53968
Woman in Black
22 Jan. 2005

GELSTRING INTACT?

Press **SELECT** to display answer to this question (Yes or No).

VOLTAGE

1. Displays present voltage, highest and lowest voltages measured, along with normal minimum and maximum acceptable voltages.

Reset Hi & Low:

A. Use the π and θ buttons to select Yes.
B. Press **SELECT** to activate Reset Hi & Low.

SCROLLER CURRENT

1. Displays present current, highest and lowest current measured, along with normal minimum and maximum acceptable current.
   A. The amount of current used by a scroller is a measure of scroller friction and an indicator of the general health of the unit.
   B. An increase in the amount of current needed for a scroller to operate may signal that is motor is going bad.

Reset Hi & Low:

A. Use the π and θ buttons to select Yes.
B. Press **SELECT** to activate Reset Hi & Low.

PASS THRU CURRENT

1. Displays present pass through current, highest and lowest current measured, along with normal minimum and maximum acceptable pass through current.
   A. Used in automatically sequencing through RDM enabled units on the lighting rig during InfoGate setup procedures.

Reset Hi & Low:

A. Use the π and θ buttons to select Yes.
B. Press **SELECT** to activate Reset Hi & Low.

FAN RPM
Press **SELECT** to display answer to the question “IS FAN RPM OK?” (Yes or No).

Self Test (Demo)

MOVE / STOP
1. Use the π and θ buttons to select “Move” or “Stop” gelstring commands.
2. Press **SELECT** to activate selected command.
3. Present current and voltage information is also displayed, along with maximum acceptable current and minimum acceptable voltage.

History

GELSTRING HISTORY
1. Use the π and θ buttons to scroll through the data.

All gelstring history reflects lifetime use of that gelstring, whether the gelstring has been moved from one scroller to another or remained with the same scroller throughout its lifetime.

Total Time (in hours)
The total number of hours that the gelstring has been in use over its entire lifetime.

Total Moves
The total number of times that the gelstring has scrolled from one gel frame to another.

Total Distance (in meters)
The total distance that the gelstring has scrolled.

Average Move (in centimeters)
The average distance that the gelstring moves per command.

Average Velocity (in centimeters per second)
The average velocity at which the gelstring moves.

Max at Frame:
The frame count is the number of times that each frame of the gelstring has been in the aperture of the Coloram IT. This information is stored in the InfoTrace system and the RFID tag on the gelstring.

The “Max at Frame” number is the largest number of all the frame counts.

Example: The color changer has been to following frames:

Frame 1	15 times
Frame 2	11 times
Frame 3	37 times

The Max at Frame number displayed is 37.

OPERATING HOURS

Cleaning Info

A. Lifetime operating hours is shown at the bottom of the first display, which is the total number of hours the scroller has been in use over its lifetime. This counter is never reset.

B. Press **SELECT** to display the gauge that indicates how the color changer currently rates between “Like New” and “Needs Cleaning”.

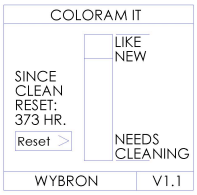


Figure 7

Cleaning means cleaning dust out of the vent slots, off the printed circuit board, off the internal components and cleaning the inside surfaces of the tag sensor.

C. The display also shows the number of hours since the last cleaning of the color changer. Reset the Hours function after each cleaning:

Reset Hours

i. Press **SELECT** to select the Reset Hours function.
ii. Use the π and θ buttons to select Yes on the “Reset Cleaning Hours Gauge?”
iii. Press **SELECT** to activate Reset Cleaning Hours Gauge.

Maintenance Info

A. Lifetime operating hours is shown at the bottom of the first display, which is

the total number of hours the scroller has been in use over its lifetime. This counter is never reset.

B. Press **SELECT** to display the gauge that indicates how the color changer rates between “Like New” and “Needs Maintenance”.

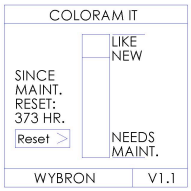


Figure 8

Maintenance means replacing a failed part on the color changer.

C. The display also shows the number of hours since the last maintenance on the color changer. Reset the Hours function after each maintenance cycle:

Reset Hours

i. Press **SELECT** to select the Reset Hours function.
ii. Use the π and θ buttons to select Yes on the “Reset Maintenance Hours Gauge?”
iii. Press **SELECT** to activate Reset Maintenance Hours Gauge.

Host Light Lamp

A. Press **SELECT** to display the gauge that indicates the number of hours that the lighting fixture has been on since its lamp was installed. Reset the Hours function after each relamping.

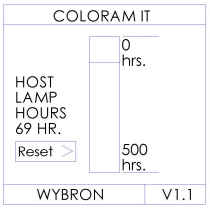


Figure 9

Reset Hours

i. Press **SELECT** to select the Reset function.
ii. Use the π and θ buttons to select Yes on the “Reset Host Light Lamp Hours Gauge?”
iii. Press **SELECT** to activate Reset Host Light Lamp Hours Gauge.

Reset Defaults

1. Press **SELECT** to select “Reset Defaults”.
2. Use the π and θ buttons to select Yes to Reset Defaults.

3. Press **SELECT** to activate Reset Defaults:

Scroller address is 1
Fan address is 2
Time to Destination address is 3
Fan speed is High
Gel speed is High

Head-Feet Restrictions

The HEAD-FEET parameter is a method of accounting for the voltage drop in the power/signal cable caused by the current drawn by each color changer.

To help understand this issue, think of it as water pressure (voltage) in a hose (cable) where you have multiple water sprinkler heads (color changers). If the hose (cable) is too long or you have too many sprinkler heads (color changers), the water pressure (voltage) will be too low.

HEAD-FEET is defined as "the sum of cable lengths from each color changer to a single power supply output".

Head-Feet Example:

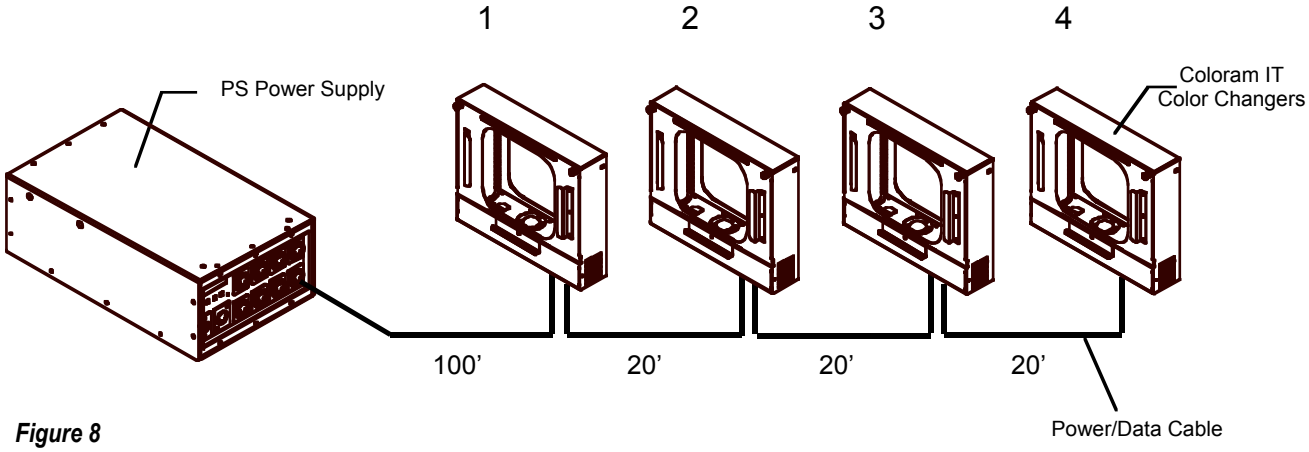


Figure 8

Figure 10

The length of cable from the Power Supply to:
1st Coloram 100'
2nd Coloram 120'

3rd Coloram 140'
4th Coloram 160'
520 "head feet"

The maximum HEAD-FEET for each of the Coloram IT Color Changers is as follows:

84520	4-inch Coloram IT	1500 head feet
87110	7.5-inch Coloram IT	1500 head feet
810100	10-inch Coloram IT	1000 head feet

If a daisy chain consists of different models, use the model with the smallest amount of "head feet" for the calculation.

Mounting and Installation Accessories

The components of your Coloram IT System may require the installation of additional mounting accessories or the replacement of others. Some of these accessories are supplied, such as the power supply hanger brackets and your choice of one color changer mounting plate. Other accessories, such as the power supply rack mount kit and additional mounting plates, may need to be purchased separately. The following sections describe the procedures for installation and replacement of some of these accessories.

Color Changer Mounting Plate

The Coloram IT Color Changer ships with your choice of available mounting plates installed. It may be necessary, when mounting the color changer on different light fixtures, to replace the mounting plate.

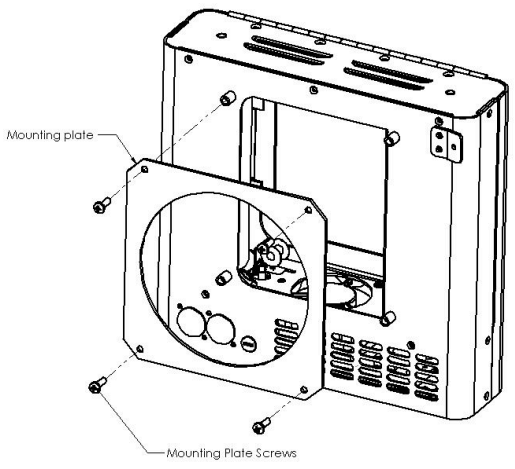


Figure 11

1. Place the color changer on a flat surface, with the Coloram IT logo face down.

2. Unscrew the four screws which hold the current mounting plate on.

3. Place the replacement mounting plate on the color changer, aligning the screw holes properly.

4. Fasten the four corners of the mounting plate to the color changer using the same screws you removed in step 2.

Note: Always use the supplied screws, as they are treated with an anti-vibration compound to keep them from loosening

Replacing a Gelstring

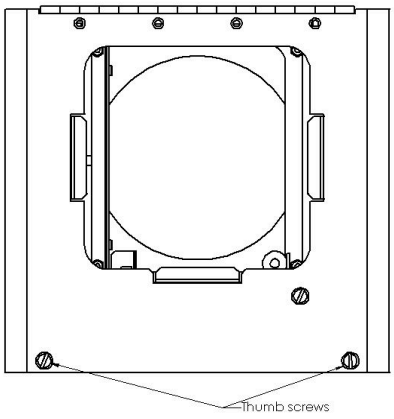
At some point in time you may find that you need to replace the gelstring in your color changer, either because the old one wears out or because you want a different selection of colors. With all the Coloram IT Color Changers this is quick and easy.

Caution: Operating the Coloram IT Color Changers with damaged gelstrings will damage the color changers. Replace the gelstrings before damage occurs.

Note: If a frame in the gelstring becomes damaged, do not remove the frame and splice the gelstring. Replace the gelstring. Gelstrings may be ordered online from Color ExpressIT at www.wybron.com. See the ColorExpress IT section at the end of this manual for details.

Remove the Old Gelstring

This procedure is performed with no power to the color changer.



1. Place the color changer on a flat surface with the Coloram IT logo facing toward you.

2. Lift the front panel by unscrewing the two thumb screws at the bottom right and left corners of the front door as shown in the first picture on the left.

3. Gently roll the gelstring onto the left roller, exposing the clear leader taped on the right roller.

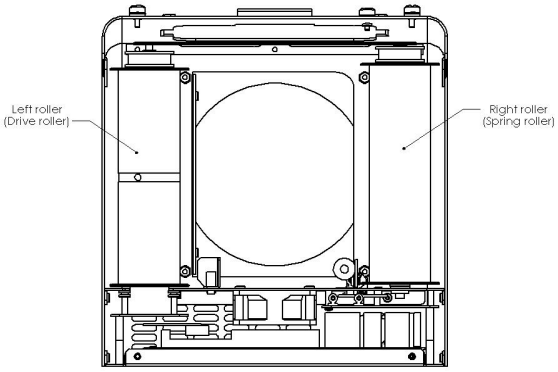


Figure 13

4. Untape the leader from the right roller. Remove the tape from the leader.

5. Roll the gelstring onto a cardboard tube as you slowly remove it from the left roller.

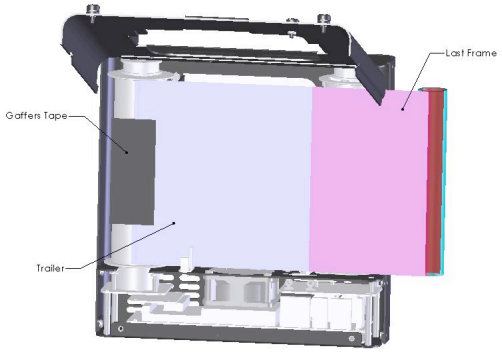
6. When you reach the clear trailer, untape it from the roller.

Hint: To save time, move all gelstrings to the first frame via the DMX source before disconnecting power.

Install the new gelstring

Note: Use good quality gaffer's tape to attach the gelstrings to the rollers. ***Do not use duct tape or masking tape.*** *Be sure the roller is clean. The tape should be 2/3 of the roller length and apply the tape "lengthwise" on the roller.*

Figure 14



1. Put a strip of gaffer's tape on the edge of the gelstring trailer. Holding the trailer, let the rest of the roll hang off the right side of the color changer.

2. Center the edge of the trailer between the two flanges of the left roller as shown to the left. Tape the trailer along the top of the roller as shown.

3. Roll the gelstring onto the left roller until the end of the leader is directly above the right roller.

4. Put a strip of gaffer's tape on the gelstring leader.

5. While holding the end of the gelstring, turn the right roller toward the left roller. The sticker at the bottom end of the roller has a black line on it to help you judge the number of turns.

6. Tape the gelstring to the right (spring) roller.

Note: Use the maximum number of spring roller turns for gel strings with the maximum number of frames. Use less turns for shorter gelstrings. Refer to the gelstring tension chart below for the exact number of turns for your color changer/gelstring combination.

Models: 84520, 87110	**Number of Turns**
2 - 10 frames	5
11 - 18 frames	6
19 - 26 frames	7
27 - 32 frames	8

Model: 810100	**Number of Turns**
2 - 5 frames	5
6 - 10 frames	6
11 - 17 frames	7
18 - 24 frames	8

Equipment Compatibility

The following is a chart of compatibility and capacity of the various models of PS Power Supply and their companion IT devices.

Power Supply:			**PS-150**	**PS -300**	**PS -600**
Model Number:			820150	820300	820600
Output Power:			150 watts	300 watts	600 watts
Quantity per Power Supply:			↓	↓	↓
Description	*Model*	*Max. Head-Feet*	*PS-150*	*PS-300*	*PS-600*
Coloram IT – 4 & 7.5 inch	84520, 87110	1500	6	12	24
Coloram IT – 10 inch	810100	1000	4	8	16
CXI IT – 7.5 inch	87200	1500	6	12	24
Eclipse IT – 1K, 2K, 5K vane	89001 811010 817000	1500	8	16	32
Eclipse II IT – 1K, 2K iris	87230 812010	1500	6	12	24

Non-RDM Equipment and InfoTrace

A lighting rig can use any combination of non-IT, non RDM, non-InfoChip equipment, along with IT equipment. The non-IT equipment will work the old-fashioned way (hand addressing, no status reporting or other features). The RDM protocol allows configuration, status monitoring and management of RDM devices in such a way that does not disturb the normal operation of the DMX devices that do not recognize the RDM protocol.

Coloram IT and Standard (non-IT) Environments

The Coloram IT family of products (Coloram IT, CXI IT, Eclipse IT and Eclipse II IT, which all must be connected to PS Power Supplies) will work in any standard environment that does not use InfoGate.

Specifications

End to end speed:
- Models: 84520 and 87110 — 3.2 seconds
- Models: 810100 — 5 seconds

Fan Speed: High, Low, Remote
Fuse: 1.5 Amp Slo Blo (84520 & 87110)
Max Gelstring:
- Models: 84520 and 87110: 2 – 32 frames
- Models: 810100: 2 – 24 frames

LED Indicators:
- Red: Power
- Green: DMX signal

Status Display: Backlit display
Power supply compatibility:
- PS 150 Power Supply, 150 watts
- PS 300 Power Supply, 300 watts
- PS 600 Power Supply, 600 watts

Signal termination: None required
Weight:
- 84520 - 4-inch Coloram IT Color Changer: 4.06 lbs./1.85 kg
- 87110 - 7.5-inch Coloram IT Color Changer: 4.86 lbs./2.2 kg
- 810100 -10-inch (2K) Coloram IT Color Changer: 5.96 lbs./2.7 kg

Dimensions:
- 84520 - 4-inch:
  9.80”/249mm wide x 9.35”/237mm high x 3.46”/88mm deep
- 87110 - 7.5-inch:
  12.87”/326.89mm wide x 11.39”/289mm high x 3.60”/92mm deep
- 810100 -10-inch:
  15.37”/390.39mm wide x 13.61”/346mm high x 3.56”/90mm deep

Parts List

To order any of the following items, contact your authorized WYBRON dealer.

The Coloram IT Color Changers and Power Supplies

84520	4-inch Coloram IT
87110	7.5-inch Coloram IT
810100	10-inch Coloram IT
820150	PS-150 Power Supply, 150 watts
820300	PS-300 Power Supply, 300 watts
820600	PS-600 Power Supply, 600 watts

Coloram IT mounting and installation accessories

452-01-03P	6.25"/158.75mm mounting plate for 4-inch Color Changer
452-03-04	6.25"/158.75mm mounting plate for 7.5-inch Color Changer
704-01-03P	7.5"/190.5mm mounting plate for 7.5-inch Color Changer
711-01-03P	10"/254mm mounting plate for 7.5-inch Color Changer
1009-01-20P	12.125"/307.98mm mounting plate for 10-inch Color Changer
1009-01-21P	14.25"/361.95mm mounting plate for 10-inch Color Changer
8711-03-01	Universal mounting plate for 7.5-inch Color Changer
81010-03-01	Universal mounting plate for 10-inch Color Changer
SCRPH832037P	3/8" pan head screws for mounting plate to Color Changer
SCRPH832050	1/2" pan head screws for mounting plate to Color Changer
715-01-03P	PS 150-300-600 Power Supply hanger bracket
SCRWC252075	Wing screw for Power Supply hanger bracket to pipe
SCRSC2520037	Socket cap screw for hanger bracket to Power Supply

The Coloram IT System cable

7042-3	3' power/signal cable
7042-5	5' power/signal cable
7042-10	10' power/signal cable
7042-15	15' power/signal cable
7042-25	25' power/signal cable
7042-50	50' power/signal cable
7042-75	75' power/signal cable
7042-100	100' power/signal cable

Warranty Information

WYBRON, INC. warrants to the original owner or retail customer that for a period of one year from date of delivery of a portable system or energization of a permanently installed system (up to a maximum of 18 months from delivery) its products will be free from defects in materials and workmanship under normal use and service.

Warranty does not cover any product or part of a product subject to accident, negligence, alteration, abuse, misuse or any accessories or parts not supplied by WYBRON, INC. Warranty does not cover "consumable" parts such as fuses, lamps, or color media. WYBRON, INC.'s warranty does not extend to items not manufactured by us. Freight terms on warranty repairs are FOB WYBRON, INC. factory or designated repair facility. Collect shipments or freight allowances will not be accepted.

WYBRON, INC.'s sole responsibility under this warranty shall be to repair or replace at WYBRON, INC.'s option such parts as shall be determined to be defected on WYBRON, INC.'s inspection. WYBRON, INC. will not assume any responsibility for any labor expended or materials used to repair any equipment without WYBRON, INC.'s prior written authorization. WYBRON, INC. shall not be responsible for any incidental, general or consequential damages to property, damages for loss of use, time, profits or income, or any other charges.

The owner's obligations during the warranty period under this warranty are to notify WYBRON, INC. at WYBRON, INC.'s address within one week of any suspected defect, and return the goods prepaid to WYBRON, INC. at their factory or authorized service center.

This warranty is contingent on the customer's full and timely compliance with the terms of payment set forth in said purchase order. This warranty is expressly in lieu of any and all other warranties expressed or implied including the warranties of merchantability and fitness for a particular purpose and of other obligations and liabilities on our part. The owner acknowledges that no other representations were made to him or relied upon him with respect to the quality and function of the goods sold.

This written warranty is intended as a complete and exclusive statement of the terms thereof. Prior dealings or trade usage shall not be relevant to modify, explain or vary this warranty. Acceptance of, or acquiescing in, a course of performance under this warranty shall not modify the meaning of this agreement even though either party has knowledge of the performance and a chance to object.

ColorExpress IT Gelstrings

ColorExpress IT gelstrings have InfoTrace capability. Every gelstring is embedded with an RFID (radio frequency identification) tag, which relays information to the sensors on Coloram IT and CXI IT. The tag contains individual frame information as well as a unique job number, which allows for easy reordering.

Log into Wybron's website (www.wybron.com), using your email address as your login, and all of your information is immediately available. Every gelstring ordered in the past can be viewed, as well as gelstrings grouped by project.

There are four sections in the ColorExpress IT web page:

Gels

This section gives you in depth information about all gel colors available from any manufacturer. Beyond just name, manufacturer and number, you can get chromaticity and transmission graphs.

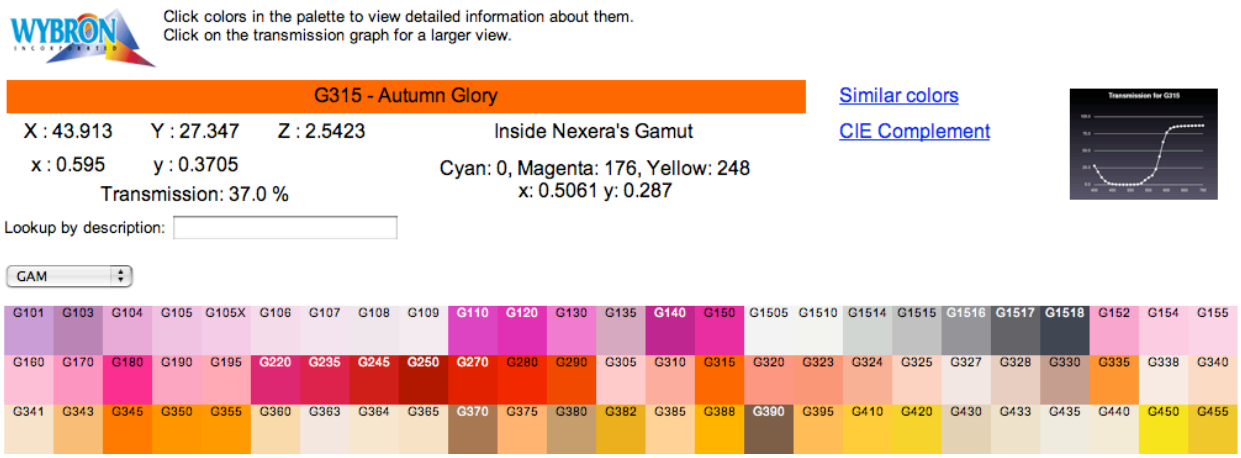

Click colors in the palette to view detailed information about them.
Click on the transmission graph for a larger view.
G315 - Autumn Glory
Similar colors
CIE Complement
X : 43.913 Y : 27.347 Z : 2.5423
Inside Nexera's Gamut
x : 0.595 y : 0.3705
Cyan: 0, Magenta: 176, Yellow: 248
Transmission: 37.0 %
x: 0.5061 y: 0.287
Lookup by description:
GAM
G101 G103 G104 G105 G105X G106 G107 G108 G109 G110 G120 G130 G135 G140 G150 G1505 G1510 G1514 G1515 G1516 G1517 G1518 G152 G154 G155
G160 G170 G180 G190 G195 G220 G235 G245 G250 G270 G280 G290 G305 G310 G315 G320 G323 G324 G325 G327 G328 G330 G335 G338 G340
G341 G343 G345 G350 G355 G360 G363 G364 G365 G370 G375 G380 G382 G385 G388 G390 G395 G410 G420 G430 G433 G435 G440 G450 G455

Figure 15

If the gel is within the range reproducible by Wybron's NexeraLX dichroic color mixing fixture, the DMX values (0 – 255) are displayed for the Cyan, Magenta and Yellow dichroics. If Nexera cannot exactly match a gel color, a suggested combination of DMX values will be displayed.

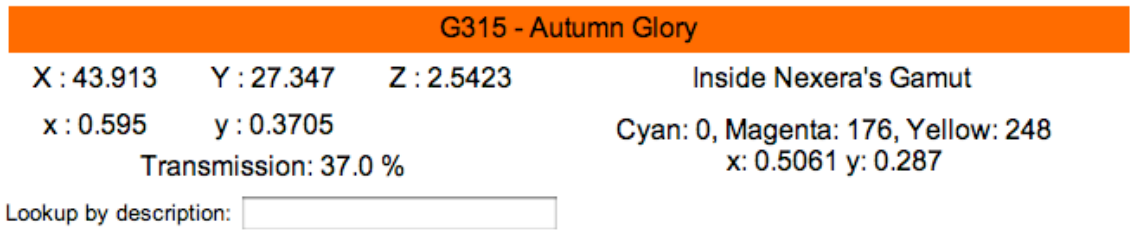

G315 - Autumn Glory
X : 43.913 Y : 27.347 Z : 2.5423
Inside Nexera's Gamut
x : 0.595 y : 0.3705
Cyan: 0, Magenta: 176, Yellow: 248
Transmission: 37.0 %
x: 0.5061 y: 0.287
Lookup by description:

Figure 16

Click on the transmission graph to enlarge the graph.

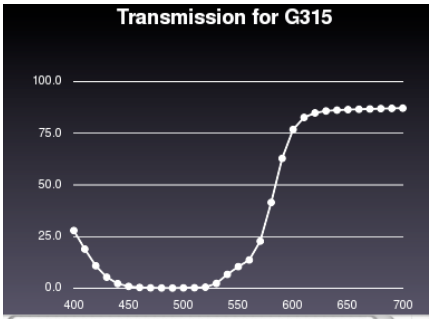


Figure 17

Clicking on “Similar Colors” displays gels similar to the selected G315.

Figure 18

Clicking on “CIE Complement” displays gels that are the complement or opposite of G315.

Figure 19

To release the display of “Similar Colors” or “CIE Complement”, click on any gel color displayed on the screen.

Colors can also be searched by name (“purple” or “congo”), gel number, and brand.

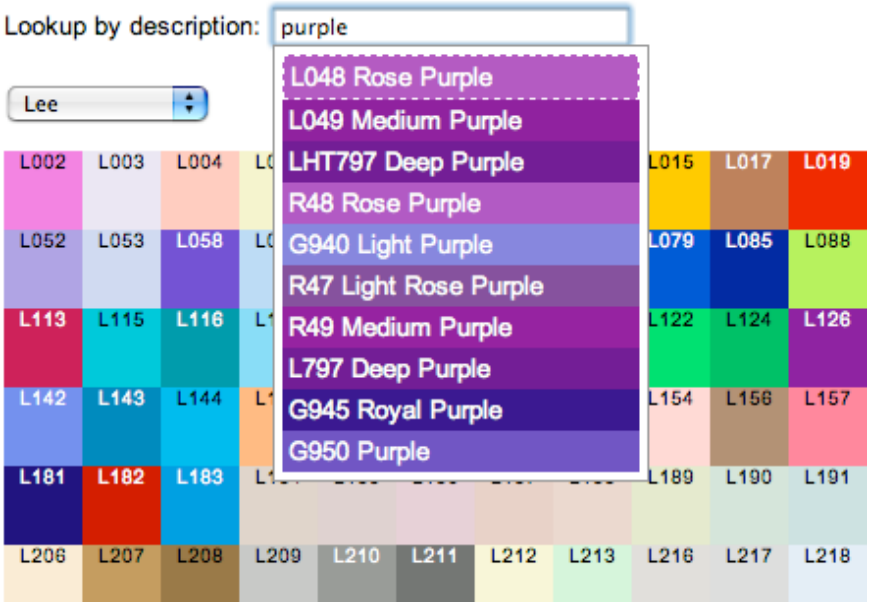


Figure 20

Gelstrings

This is where you build new gelstrings, as well as view all the past gelstrings that you have created on ColorExpress IT. When new gelstrings are created, you assign them a name (“Finale” for example). This makes it easy to locate favorite gelstrings from past shows.

A simple double-click on any gel color in the palette makes it easy to create new gelstrings. Rearrange gels in your gelstring by dragging and dropping them in any order desired (Safari and Firefox only).

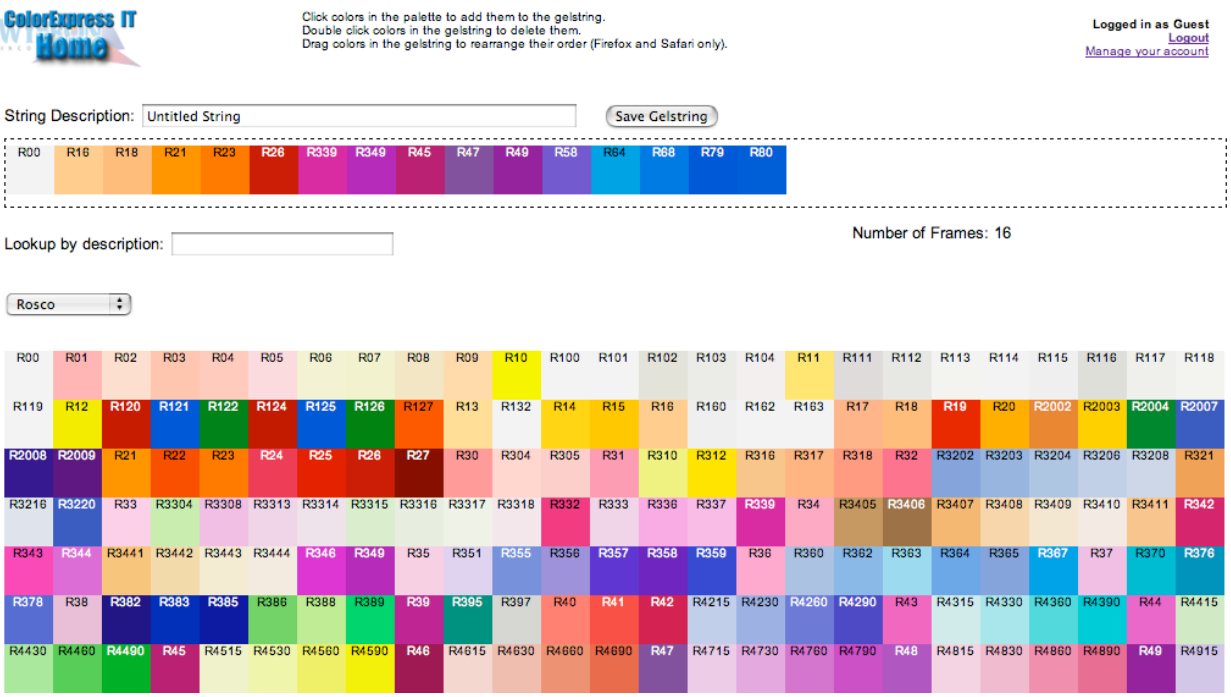


Figure 21

To delete a gel from the gelstring, double click on the selected color in the gelstring.

Previous gelstrings that you have created are also stored on the Gelstring page.

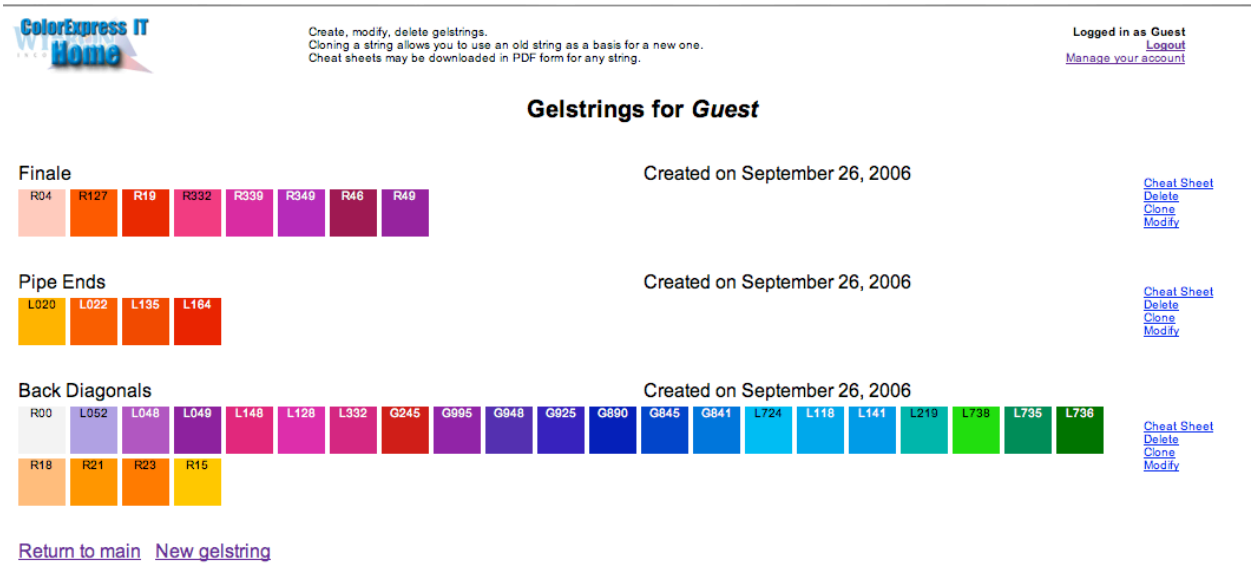


Figure 22

By clicking on “Cheat Sheet” on the far right hand side of the screen, you can also print out color coded cheat sheets showing frame number, gel name, gel number, and DMX value.

Gelstring name: Finale

Percent	Color	Frame
0 %	R04 - Medium Bastard Amber	1
14 %	R127 - Amber Cyc Silk	2
28 %	R19 - Fire	3
42 %	R332 - Cherry Rose	4
56 %	R339 - Broadway Pink	5
70 %	R349 - Fisher Fuchsia	6
84 %	R46 - Magenta	7
98 %	R49 - Medium Purple	8

Figure 23

The selections on the Gelstring screen allow you to do the following:

Cheat Sheet	Prints out a color coded cheat sheet of the selected gelstring
Delete	Deletes the selected gelstring
Clone	Copies the selected gelstring as a new gelstring, ready for edits
Modify	Allows the user to edit the selected gelstring
Return to Main	Return to the Main Page of ColorExpress IT
New Gelstring	Create a new gelstring

Sets of CXI gelstrings (Gelstrings 1 and 2) may also be ordered online at ColorExpress IT. Please see the “Order” section below for details.

Projects

Create a Project

Projects are an easy way to associate certain gelstrings with their use. Click on “Create New Project” to start a new project file:

Figure 24

This opens a new screen ready to accept project and gelstring information.

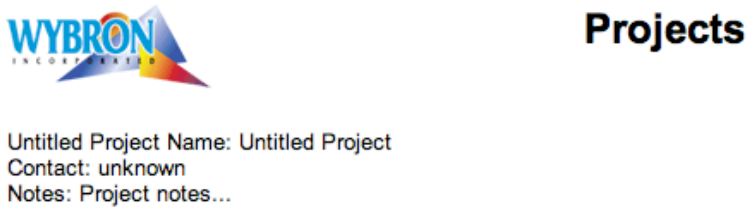


Figure 25

Double click on “Untitled Project” to the right of colon to edit the Project Name field. Enter the project name in the dialogue box provided and click “OK”.

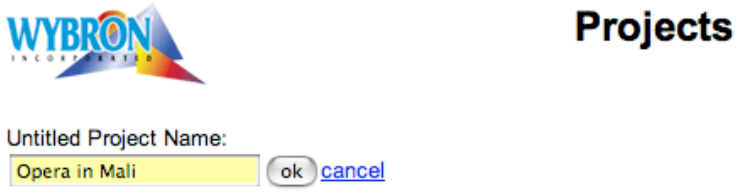


Figure 26

Under Contact, double click on “Unknown” to fill in that field, and similarly for the Notes line, double click on “Project Notes” to add any additional information.

Multiple gelstrings on Project

A project can involve multiple gelstrings. When a new project is created, add existing gelstrings or build new ones to associate with that project. Then choose a scroller size. For example, the “Back Diagonals” gelstring will be used on 7 inch Coloram II’s. All of this information is saved in the “Opera in Mali” project.

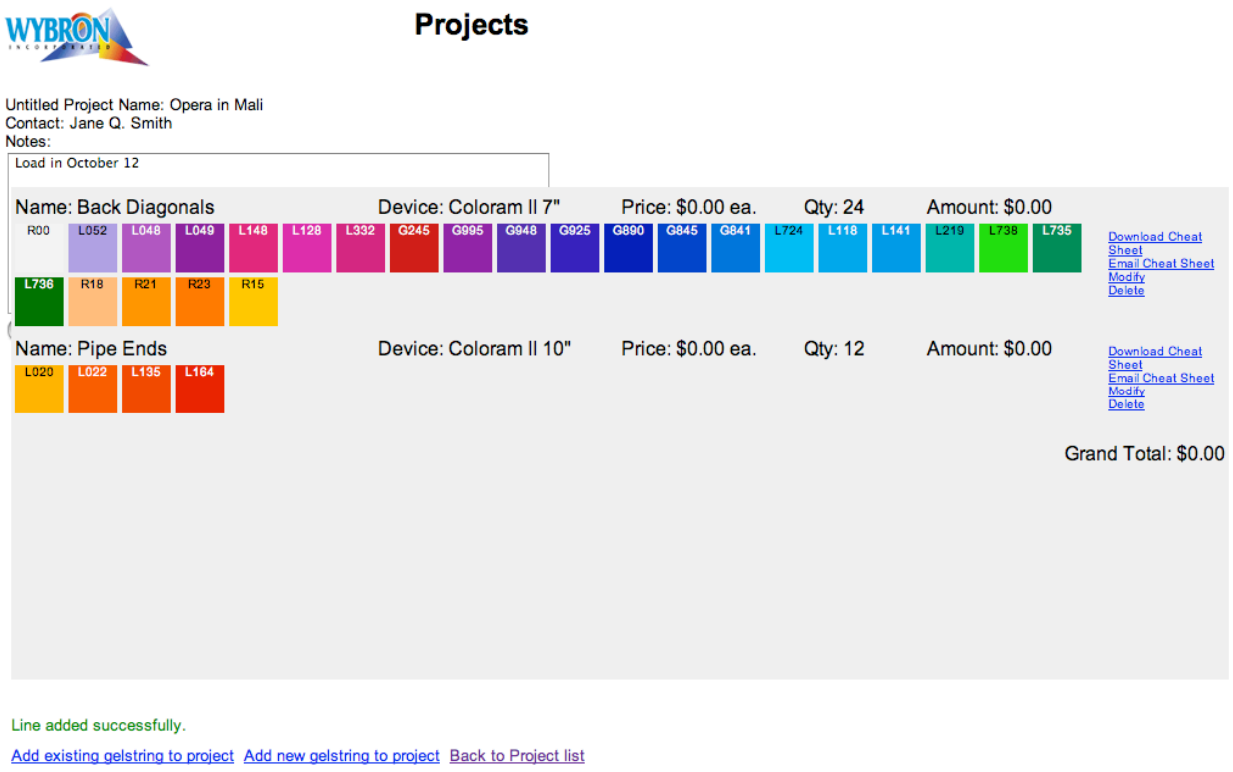


Figure 27

The functions on this show specific ("Opera in Mali") Projects page include:

Download Cheat Sheet
Creates a PDF file of the selected gelstring cheat sheet (see the color coded Cheat Sheet example earlier in this section).

Email Cheat Sheet
E-mail a cheat sheet version of the selected gelstring to one or more e-mail addresses.

Modify
Modify the selected gelstring in terms of:

Gelstring	Replace the selected gelstring with another existing gelstring
Device	Change the type of scroller associated with the selected gelstring
Quantity	Change the number of gelstrings to order

Add existing gelstring to project
Using the Gelstring pull down menu, allows the user to select from any existing gelstrings.

Add new gelstring to project
Takes the user back to the Gelstrings page, where once a new gelstring is created and saved, it is automatically added to the open Projects page.

Back to project list
Returns to the list of all projects.

Ordering

Returning to the project list displays all projects created by the user.

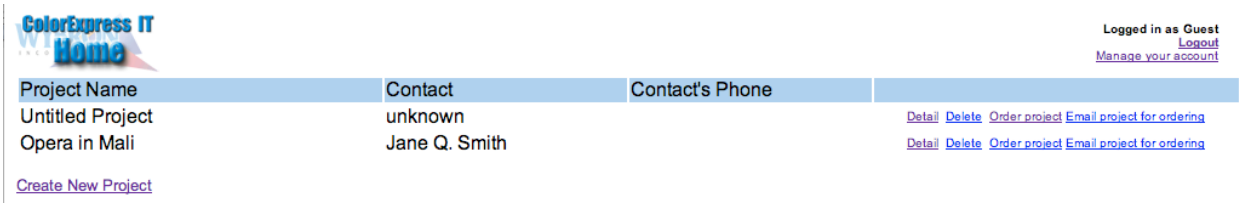


Figure 28

The functions available on this page include:

Detail
Returns user to Projects page for the specific show selected (see *Figure 22*).

Delete
Deletes the selected project.

Order Project
Displays the order page, along with the gelstring details at the bottom of the screen. Additional gelstrings that are part of the project can be viewed by using the scroll bar at the bottom right corner of the screen.

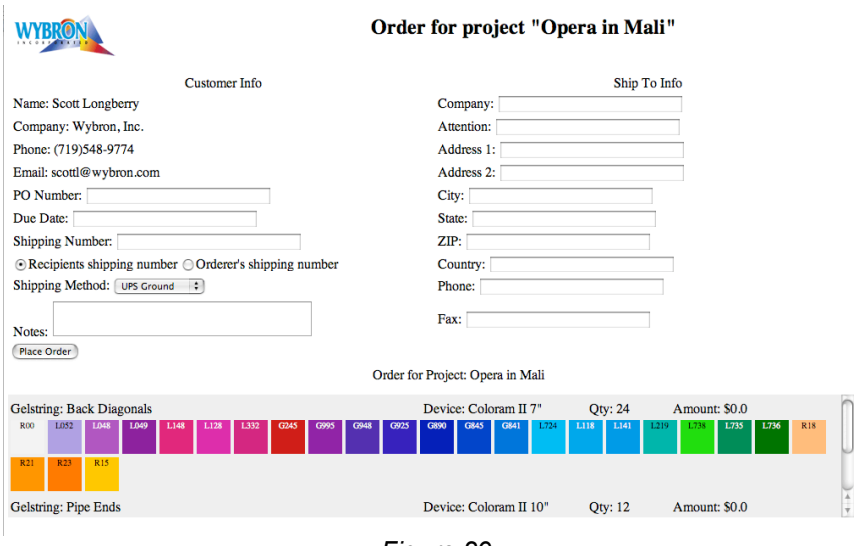


Figure 29

Fill in the requisite information and click “Place Order” to complete the transaction.

E-Mail Project for Ordering

For users who need to get approval to
place a gelstring order, click on “Email project for ordering” to display the window below.

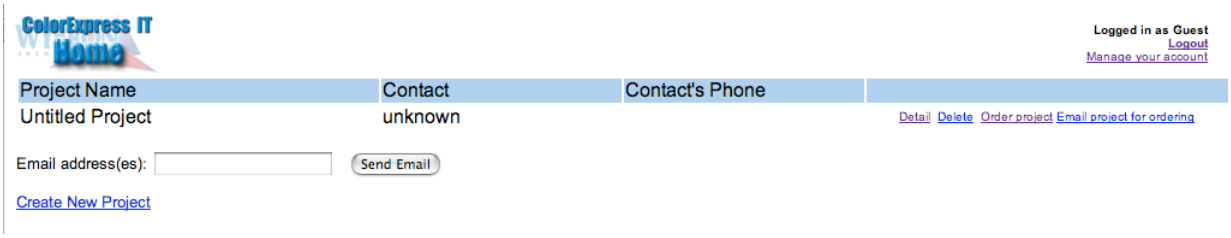


Figure 30

Fill in the requisite e-mail address and click “Send Email” to send the following message. In the example below, the user is signed in as “Guest”.

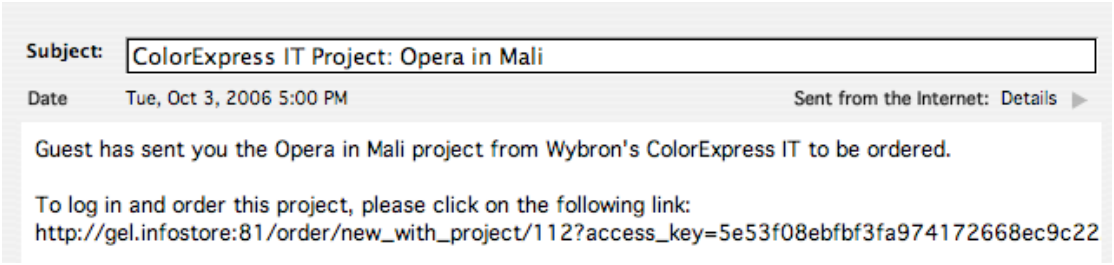

Subject:
ColorExpress IT Project: Opera in Mali
Date
Tue, Oct 3, 2006 5:00 PM
Sent from the Internet: Details
Guest has sent you the Opera in Mali project from Wybron's ColorExpress IT to be ordered.
To log in and order this project, please click on the following link:
http://gel.infostore:81/order/new_with_project/112?access_key=5e53f08ebfbf3fa974172668ec9c22

Figure 31

Orders

This is where you can view all your past gelstring orders.

Modify Your Account

Click on “Modify Your Account”, which appears at the top right corner of each screen once you have sign in. Edit information as needed.

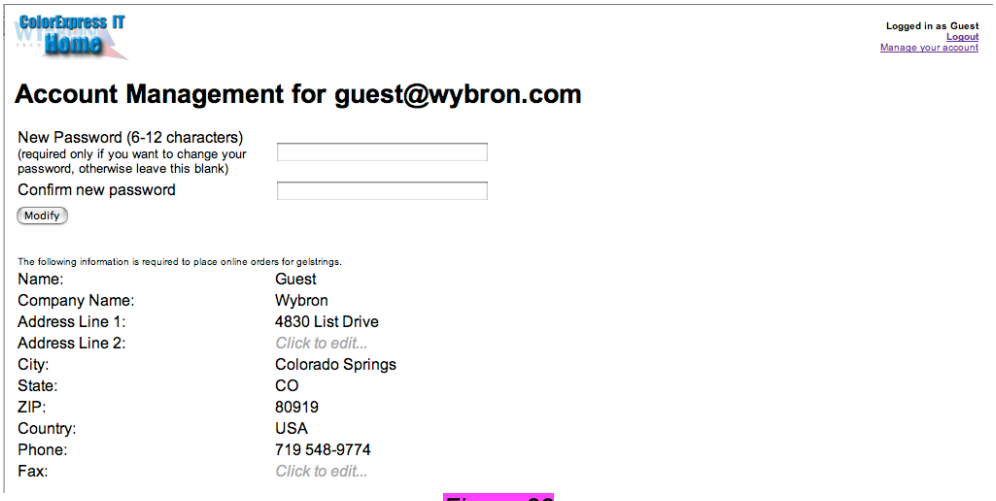

ColorExpress IT
Home
Logged in as Guest
Logout
Manage your account
Account Management for guest@wybron.com
New Password (6-12 characters)
(required only if you want to change your password, otherwise leave this blank)
Confirm new password
Modify
The following information is required to place online orders for gelstrings.
Name: Guest
Company Name: Wybron
Address Line 1: 4830 List Drive
Address Line 2: Click to edit...
City: Colorado Springs
State: CO
ZIP: 80919
Country: USA
Phone: 719 548-9774
Fax: Click to edit...

Figure 32